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BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268–0001

| PERIODIC REPORTING<br>(PROPOSAL FOUR) | Docket No. RM2016-12 |
|---|---|

# PETITION OF THE UNITED STATES POSTAL SERVICE FOR THE INITIATION OF A PROCEEDING TO CONSIDER PROPOSED CHANGES IN ANALYTICAL PRINCIPLES (PROPOSAL FOUR)
(August 22, 2016)

Pursuant to 39 C.F.R. § 3050.11, the Postal Service requests that the Commission initiate a rulemaking proceeding to consider a proposal to change analytical principles relating to the Postal Service's periodic reports. The proposal, relating to the treatment of purchased highway transportation costs within the CRA Report, is labeled Proposal Four and is discussed in detail in the attached text. For convenience, the report by Professor Bradley on the research supporting this proposal is attached to this Petition electronically.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Pricing & Product Support

Eric P. Koetting

475 L'Enfant Plaza, S.W.
Washington, D.C. 20260-1137
(202) 277-6333
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**Proposal Four: Incorporate the Variability of Capacity with Respect to Volume into the Calculation of Attributable Purchased Highway Transportation Costs.**

## Objective

The objective of this proposal is to improve the methodology for calculating attributable purchased highway transportation costs. This is accomplished by incorporating the variability of purchased highway transportation capacity with respect to volume into the calculation of attributable costs for purchased highway transportation.

## Background

Attributable purchased highway transportation costs are incurred in two steps. Changes in volume cause changes in capacity, and changes in capacity, in turn, cause changes in cost. In Docket No. RM2014-6, the Postal Service presented, and the Commission accepted, updated measures of the relationship between purchased highway transportation cost and capacity. These updates implied higher product attributable costs.

In this proposal, the Postal Service estimates the other variability, the one between purchased highway transportation capacity and volume. In the past, this variability was simply assumed to be 100 percent, implying proportionality between capacity and volume. However, the Commission raised questions about the appropriateness of that assumption:[1]

> The argument is that if there is a 10 percent increase in overall postal volume, there will need to be an increase in the CFM-of-capacity purchased of about 10 percent. The Commission does not view this as a final answer; certain questions about it have been raised in this case.

[1] See, Postal Rate Commission, Opinion and Recommended Decision, Docket No. R2000-1, Jan. 4, 1991 at 169.

More recently, the Commission noted the assumption should be tested and, if inaccurate, would result in biased calculated attributable highway transportation costs:[2]

> In addition, the Commission and the Postal Service share the view that it would be beneficial for the Postal Service to investigate the validity of the current assumption that purchased highway transportation capacity varies in direct proportion to piece volume. If this assumption is inaccurate, it will yield a biased estimate of product attributable costs for highway transportation. As the Postal Service notes, the proportional relationship between purchased highway transportation capacity and mail volume has not been empirically tested. (Footnote omitted)

Using an approach first suggested by the Commission in Docket No. N2010-1, the Postal Service tested this assumption and found that the empirical results reject the assumption of proportionality. Across all types of purchased highway transportation, capacity responds in a less-than-proportional manner to changes in volume. For example, when volume rises, the Postal Service is able to take advantage of existing empty space and capacity does not rise as quickly. When volume falls, network responsibilities preclude the Postal Service from reducing capacity in direct proportion to volume declines. In sum, the variability of purchased transportation highway capacity with respect to volume changes is less than 100 percent.

[2] See, Postal Rate Commission, Order No. 1626, Order Setting Near-Term Priorities and Requesting Related Reports, Docket No. RM2011-3, Jan. 18, 2013 at 6.

**Proposal**

The proposal is summarized below, but a full discussion of the research supporting the proposal is provided in an electronically-attached report, which is reproduced as well as in public folder USPS-RM2016-12/1. Also provided in that folder are the data, results and documentation.

The variability of capacity with respect to volume was estimated for each of the four different types of purchased highway transportation utilizing Transportation Cost System (TRACS) data covering fiscal years 2010 through 2015. The dataset included 56,369 tests taken across the different purchased highway transportation account categories. The dataset has information on the cubic capacity, the number of trips, and the cubic volume of mail for each TRACS test.

Both double-log and translog models were estimated for Intra-SCF, Inter-SCF, Intra-NDC, and Inter-NDC transportation categories. The dependent variable in these equations was a measure of transportation capacity and the primary independent variable was transported volume. The eight variability equations were subject to a set of econometric tests such as dropping zero volume observations, employing alternative measures of capacity, and correcting for autocorrelation. In all instances, the empirical results strongly rejected the assumption of proportionality between capacity and volume. The resulting estimated variabilities are presented in Table 1. The estimated variabilities from the translog model are the proposed results, and they were incorporated into the transportation cost model.

Table 1
Estimated Capacity to Volume Variabilities

Double Log Model

| Transportation Type | Estimated Variability |
|---|---|
| Intra-SCF | 70.8% |
| Inter-SCF | 80.1% |
| Intra-NDC | 75.3% |
| Inter-NDC | 85.8% |

Translog Model

| Transportation Type | Estimated Variability |
|---|---|
| Intra-SCF | 77.3% |
| Inter-SCF | 82.1% |
| Intra-NDC | 78.8% |
| Inter-NDC | 84.8% |

**Impact**

As explained in the introduction, the variability of purchased highway costs has two parts, the variability of cost with respect to capacity, and the variability of capacity with respect to volume. Because the latter variability has been assumed to be one hundred percent, the overall variability of purchased highway transportation (by transportation type) has historically been just the variability of cost with respect to capacity. We now can insert the estimated capacity-to-volume variabilities into the

formula, so the overall variability, for each transportation time, is the product of the two individual variabilities.

Because of the multiplicative relationship between the two individual variabilities, and because both sets of variabilities are less than one, the product of the two variabilities will necessarily be below the previous overall variability. This means that application of the new capacity-to-volume variabilities will have the effect of reducing attributable purchased highway transportation costs.[3] There is some variation in the estimated capacity-to-volume variabilities, with the Intra-SCF variability being the lowest and the Inter-NDC variability being the highest. This variation means the impact on individual product attributable transportation costs will depend upon the mix of purchased highway transportation cost used by the product. A product that predominantly uses Intra-SCF transportation will experience a larger proportional reduction in attributable transportation cost than a product that primarily uses Inter-NDC transportation.

The impacts of the new variabilities on transportation costs are presented in Table 2 (with a comparable nonpublic version in USPS-RM2016-12/NP1). Note that these costs include all purchased transportation costs, not just purchased highway costs. Thus, a product that materially uses air transportation will see a smaller

[3] Recall, however, that in Proposal Six in Docket No. RM2014-6 (filed June 20, 2014), the Postal Service recently proposed an updated and somewhat *higher* overall variability of cost with respect to capacity. In Order No. 2180 (September 10, 2014), the Commission approved that proposal, and consequently overall reported attributable highway transportation costs were relatively higher in FY2014 and FY2015. Compared with the status quo before that update, therefore, adoption of the instant proposal would generate overall attributable highway transportation costs that generally would reflect an increase in costs based on the updated cost-to-capacity variabilities, and a decrease in costs based on the proposed capacity-to-volume variabilities.

percentage decline in costs, because air transportation costs are not affected. That explains why the percentage reduction in First Class attributable transportation costs is smaller than the percentage reduction in Standard Mail attributable transportation costs.

Table 2

Impact of Capacity to Volume Variabilities on FY 2015 Transportation Costs ($000s)

| | New Total Transportation Cost | Old Total Transportation Cost | Absolute Change | Percentage Change |
|---|---|---|---|---|
| **FIRST-CLASS** | | | | |
| SINGLE-PIECE LETTERS | $245,391 | $287,434 | -$42,043 | -14.6% |
| SINGLE-PIECE CARDS | $3,626 | $4,351 | -$725 | -16.7% |
| PRESORT LETTERS | $442,532 | $481,192 | -$38,660 | -8.0% |
| PRESORT CARDS | $13,637 | $15,163 | -$1,526 | -10.1% |
| SINGLE PIECE FLATS | $145,407 | $165,495 | -$20,087 | -12.1% |
| PRESORT FLATS | $56,736 | $62,634 | -$5,898 | -9.4% |
| PARCELS | $50,626 | $59,307 | -$8,681 | -14.6% |
| **TOTAL FIRST-CLASS** | **$957,956** | **$1,075,576** | **-$117,620** | **-10.9%** |
| **STANDARD MAIL** | | | | |
| HIGH DENSITY AND SATURATION LETTERS | $4,961 | $6,160 | -$1,199 | -19.5% |
| HD& SATURATION FLATS & PARCELS | $17,798 | $22,248 | -$4,450 | -20.0% |
| CARRIER ROUTE | $42,609 | $52,410 | -$9,801 | -18.7% |
| LETTERS | $161,345 | $193,039 | -$31,694 | -16.4% |
| FLATS | $148,809 | $179,127 | -$30,318 | -16.9% |
| PARCELS | $7,084 | $8,544 | -$1,461 | -17.1% |
| EVERY DOOR DIRECT MAIL - RETAIL | $0 | $0 | $0 | 0.0% |
| **TOTAL STANDARD MAIL** | **$382,606** | **$461,529** | **-$78,923** | **-17.1%** |
| **PERIODICALS** | | | | |
| IN COUNTY | $98 | $123 | -$26 | -20.8% |
| OUTSIDE COUNTY | $188,782 | $226,850 | -$38,069 | -16.8% |
| **TOTAL PERIODICALS** | **$188,880** | **$226,974** | **-$38,094** | **-16.8%** |
| **PACKAGE SERVICES** | | | | |
| ALASKA BYPASS | $15,860 | $19,147 | -$3,288 | -17.2% |
| BOUND PRINTED MATTER FLATS | $21,054 | $25,539 | -$4,485 | -17.6% |
| BOUND PRINTED MATTER PARCELS | $20,101 | $24,503 | -$4,401 | -18.0% |
| MEDIA AND LIBRARY MAIL | $85,807 | $102,420 | -$16,612 | -16.2% |
| **TOTAL PACKAGE SERVICES** | **$142,823** | **$171,609** | **-$28,786** | **-16.8%** |
| **FREE MAIL - BLIND, HANDICAPPED, AND SERVICEMEN** | **$5,173** | **$5,934** | **-$761** | **-12.8%** |
| **TOTAL DOMESTIC MARKET DOMINANT** | **$1,704,064** | **$1,970,930** | **-$266,865** | **-13.5%** |
| **TOTAL DOMESTIC COMPETITIVE** | **$2,575,105** | **$2,830,003** | **-$254,899** | **-9.0%** |
| **INTERNATIONAL** | **$937,457** | **$954,527** | **-$17,071** | **-1.8%** |

Finally, the impact on overall attributable cost per piece is presented in Table 3. Products for which a relatively large proportion of their total attributable costs are in purchased highway transportation, like Bound Printed Matter Flats, will have a larger percentage reduction in unit attributable costs than a product like Standard Mail High Density and Saturation Letters, which uses relatively little highway transportation.

Table 3

Impact of Capacity to Volume Variabilities on FY 2015 Unit Attributable Costs

| | New Attributable Cost Per Piece | FY 2015 Attributable Cost Per Piece | Absolute Change | % Change |
|---|---|---|---|---|
| **FIRST-CLASS** | | | | |
| SINGLE-PIECE LETTERS | $0.267 | $0.269 | $ (0.0021) | -0.8% |
| SINGLE-PIECE CARDS | $0.250 | $0.251 | $ (0.0009) | -0.3% |
| PRESORT LETTERS | $0.123 | $0.124 | $ (0.0010) | -0.8% |
| PRESORT CARDS | $0.079 | $0.080 | $ (0.0007) | -0.9% |
| FLATS | $0.919 | $0.934 | $ (0.0156) | -1.7% |
| PARCELS | $2.387 | $2.430 | $ (0.0434) | -1.8% |
| **TOTAL FIRST-CLASS** | **$0.203** | **$0.205** | **$ (0.0019)** | **-0.9%** |
| **STANDARD MAIL** | | | | |
| HIGH DENSITY AND SATURATION LETTERS | $0.070 | $0.070 | $ (0.0002) | -0.3% |
| HD& SATURATION FLATS & PARCELS | $0.104 | $0.105 | $ (0.0004) | -0.4% |
| CARRIER ROUTE | $0.205 | $0.206 | $ (0.0012) | -0.6% |
| LETTERS | $0.103 | $0.103 | $ (0.0007) | -0.6% |
| FLATS | $0.495 | $0.501 | $ (0.0058) | -1.2% |
| PARCELS | $1.456 | $1.480 | $ (0.0242) | -1.6% |
| EVERY DOOR DIRECT MAIL - RETAIL | $0.062 | $0.062 | $ - | 0.0% |
| **TOTAL STANDARD MAIL** | **$0.137** | **$0.138** | **$ (0.0010)** | **-0.7%** |
| **PERIODICALS** | | | | |
| IN COUNTY | $0.155 | $0.155 | $ (0.0000) | 0.0% |
| OUTSIDE COUNTY | $0.375 | $0.382 | $ (0.0072) | -1.9% |
| **TOTAL PERIODICALS** | **$0.353** | **$0.360** | **$ (0.0065)** | **-1.8%** |
| **PACKAGE SERVICES** | | | | |
| ALASKA BYPASS | $12.371 | $14.935 | $ (2.5645) | -17.2% |
| BOUND PRINTED MATTER FLATS | $0.563 | $0.580 | $ (0.0172) | -3.0% |
| BOUND PRINTED MATTER PARCELS | $1.028 | $1.048 | $ (0.0193) | -1.8% |
| MEDIA AND LIBRARY MAIL | $4.573 | $4.795 | $ (0.2218) | -4.6% |
| **TOTAL PACKAGE SERVICES** | **$1.309** | **$1.360** | **$ (0.0510)** | **-3.7%** |
| **FREE MAIL - BLIND, HANDICAPPED AND SERVICEMEN** | **$0.898** | **$0.915** | **$ (0.0169)** | **-1.8%** |
| **TOTAL DOMESTIC COMPETITIVE** | **$2.706** | **$2.775** | **$ (0.0688)** | **-2.5%** |